



<110> Jager, Dirk
Stockert, Elizabeth
Scanlan, Matthew
Gure, Ali
Knuth, Alexander
Old, Lloyd
Chen, Yao-tseng

<120> Isolated Nucleic Acid Molecules Encoding Cancer Associated Antigens,
the Antigens Per Se, and Uses Thereof

<130> LUD 5793.1

<140> US 10/729,340

<141> 2003-12-04

<150> US 60/430,869

<151> 2002-12-04

<150> US 10/181,663

<151> 2000-11-29

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gacacagtgg	gcaacagcgg	caagggttgg	gcggacaggc	ccaatggcga	tgcggtagcg	480
cagtctgaca	agcccaacag	caagcgctca	cggcggcagc	gcaacaacga	gaaccgtgag	540
aacgcgtcca	gcaaccacga	ccacgacgac	ggcgccctcg	gcacacccaa	ggagaagaag	600
gccaagacct	ccaagaagaa	gaagcgctcc	aaggccaagg	cggagcgaga	ggcgtcccct	660
gccgacctcc	ccatcgaccc	caacgaaccc	acgtactgtc	tgtgcaacca	ggtctcctat	720
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ccattccttt	catagggatg	gcagtgattc	tgtttgccct	ttgttttcat	tggtacacgt	1080
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<212> DNA

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tgggacgaga	tcctgaagga	gctagacgag	tgctacgagc	gcttcagtcg	cgagacagac	180
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ctgggcgacg	agaagatcca	gatcgtgagc	cagatgggtg	agctgggtgga	gaaccgcacg	300
cggcagggtg	acagccacgt	ggagctgttc	gaggcgcagc	aggagctggg	cgacacagcg	360
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aagcccaaca	gcaagcgctc	acggcggcag	cgcaacaacg	agaaccgtga	gaacgcgtcc	480
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tccaagaaga	agaagcgctc	caaggccaag	gcggagcgag	aggcgtcccc	tggcgacctc	600
cccatcgacc	ccaacgaacc	cacgtactgt	ctgtgcaacc	aggtctccta	tggggagatg	660
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 ctttgtctcc aagccgttcc aaactgagta ccgggagacg acacaaaggg agggcggtga 180
 cggatggcgc aggcgcggga gccgcctagg ctgctgggag tgggtggtccg gccgcggaat 240
 ggagatcctg aaggagctag acgagtgtca cgagcgcttc agtcgcgaga cagacggggc 300
 gcagaagcgg cggatgctgc actgtgtgca gcgcgcgctg atccgcagcc aggagctggg 360
 cgacgagaag atccagatcg tgagccagat ggtggagctg gtggagaacc gcacgcggca 420
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 caacagcaag cgctcacggc ggcagcgcaa caacgagaac cgtgagaacg cgtccagcaa 600
 ccacgaccac gacgacggcg cctcgggcac acccaaggag aagaaggcca agacctcaa 660
 gaagaagaag cgctccaagg ccaaggcgga gcgagaggcg tccctgccg acctcccat 720
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 Asn Val Ser Leu Met Arg Glu Ile Asp Ala Lys Tyr Gln Glu Ile Leu
 35 40 45
 Lys Glu Leu Asp Glu Cys Tyr Glu Arg Phe Ser Arg Glu Thr Asp Gly
 50 55 60
 Ala Gln Lys Arg Arg Met Leu His Cys Val Gln Arg Ala Leu Ile Arg
 65 70 75 80
 Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val Ser Gln Met Val
 85 90 95
 Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser His Val Glu Leu
 100 105 110
 Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys
 115 120 125
 Val Gly Ala Asp Arg Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys
 130 135 140
 Pro Asn Ser Lys Arg Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu
 145 150 155 160
 Asn Ala Ser Ser Asn His Asp His Asp Asp Gly Ala Ser Gly Thr Pro
 165 170 175
 Lys Glu Lys Lys Ala Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala
 180 185 190
 Lys Ala Glu Arg Glu Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn
 195 200 205
 Glu Pro Thr Tyr Cys Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile
 210 215 220
 Gly Cys Asp Asn Asp Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys
 225 230 235 240

Val Gly Leu Asn His Lys Pro Lys Gly Lys Trp Tyr Cys Pro Lys Cys
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 Arg Gly Glu Asn Glu Lys Thr Met Asp Lys Ala Leu Glu Lys Ser Lys
 260 265 270
 Lys Glu Arg Ala Tyr Asn Arg
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 35 40 45
 Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys Val Gly Ala Asp Arg
 50 55 60
 Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys Pro Asn Ser Lys Arg
 65 70 75 80
 Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu Asn Ala Ser Ser Asn
 85 90 95
 His Asp His Asp Asp Gly Ala Ser Gly Thr Pro Lys Glu Lys Lys Ala
 100 105 110
 Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala Lys Ala Glu Arg Glu
 115 120 125
 Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn Glu Pro Thr Tyr Cys
 130 135 140
 Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile Gly Cys Asp Asn Asp
 145 150 155 160
 Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys Val Gly Leu Asn His
 165 170 175
 Lys Pro Lys Gly Lys Trp Tyr Cys Pro Lys Cys Arg Gly Glu Asn Glu
 180 185 190
 Lys Thr Met Asp Lys Ala Leu Glu Lys Ser Lys Lys Glu Arg Ala Tyr
 195 200 205
 Asn Arg
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<210> 7
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 20 25 30
 Ala Leu Ile Arg Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val
 35 40 45
 Ser Gln Met Val Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser
 50 55 60
 His Val Glu Leu Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly

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Asn	Ser	Gly	Lys	Val	Gly	Ala	Asp	Arg	Pro	Asn	Gly	Asp	Ala	Val	Ala
		85		90		95									
Gln	Ser	Asp	Lys	Pro	Asn	Ser	Lys	Arg	Ser	Arg	Arg	Gln	Arg	Asn	Asn
		100		105		110									
Glu	Asn	Arg	Glu	Asn	Ala	Ser	Ser	Asn	His	Asp	His	Asp	Asp	Gly	Ala
		115		120		125									
Ser	Gly	Thr	Pro	Lys	Glu	Lys	Lys	Ala	Lys	Thr	Ser	Lys	Lys	Lys	Lys
		130		135		140									
Arg	Ser	Lys	Ala	Lys	Ala	Glu	Arg	Glu	Ala	Ser	Pro	Ala	Asp	Leu	Pro
		145		150		155									
Ile	Asp	Pro	Asn	Glu	Pro	Thr	Tyr	Cys	Leu	Cys	Asn	Gln	Val	Ser	Tyr
		165		170		175									
Gly	Glu	Met	Ile	Gly	Cys	Asp	Asn	Asp	Glu	Cys	Pro	Ile	Glu	Trp	Phe
		180		185		190									
His	Phe	Ser	Cys	Val	Gly	Leu	Asn	His	Lys	Pro	Lys	Gly	Lys	Trp	Tyr
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Cys	Pro	Lys	Cys	Arg	Gly	Glu	Asn	Glu	Lys	Thr	Met	Asp	Lys	Ala	Leu
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gtcggatcac	gaggtcagga	gatcgagacc	atcctggcta	acacggtgaa	accccgctctc	600
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attcgggagg	ctgaggcagg	agaatggcnt	gaacctggga	ggtggagctt	gcantgagcc	720
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<210> 11
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<210> 13
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<210> 14
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<210> 15
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 <223> n is unknown
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Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn
          35          40          45
Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln
          50          55          60
Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr
65          70          75          80
Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Thr His Gln Lys Glu
          85          90          95
Ile Asp Lys Ile Asn Gly Lys Leu Glu Glu Ser Pro Asp Asn Asp Gly
          100          105          110
Phe Leu Lys Ala Pro Cys Arg Met Lys Val Ser Ile Pro Thr Lys Ala
          115          120          125
Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys
          130          135          140
Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn
145          150          155          160
Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln Met
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Phe Pro Ser Glu Ser Lys Gln Lys Lys Val Glu Glu Asn Ser Trp Asp
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Ser Glu Ser Leu Arg Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro

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195	200	205
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225	230	235
Arg Ala Arg Glu Leu Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys		
245	250	255
Met Glu Gln Met Lys Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser		
260	265	270
Glu Ala Lys Glu Ile Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp		
275	280	285
Glu Gln Glu Leu Cys Ser Val Arg Leu Thr Leu Asn Gln Glu Glu Glu		
290	295	300
Lys Arg Arg Asn Ala Asp Ile Leu Asn Glu Lys Ile Arg Glu Glu Leu		
305	310	315
Gly Arg Ile Glu Glu Gln His Arg Lys Glu Leu Glu Val Lys Gln Gln		
325	330	335
Leu Glu Gln Ala Leu Arg Ile Gln Asp Ile Glu Leu Lys Ser Val Glu		
340	345	350
Ser Asn Leu Asn Gln Val Ser His Thr His Glu Asn Glu Asn Tyr Leu		
355	360	365
Leu His Glu Asn Cys Met Leu Lys Lys Glu Ile Ala Met Leu Lys Leu		
370	375	380
Glu Ile Ala Thr Leu Lys His Gln Tyr Gln Glu Lys Glu Asn Lys Tyr		
385	390	395
Phe Glu Asp Ile Lys Ile Leu Lys Glu Lys Asn Ala Glu Leu Gln Met		
405	410	415
Thr Leu Lys Leu Lys Glu Glu Ser Leu Thr Lys Arg Ala Ser Gln Tyr		
420	425	430
Ser Gly Gln Leu Lys Val Leu Ile Ala Glu Asn Thr Met Leu Thr Ser		
435	440	445
Lys Leu Lys Glu Lys Gln Asp Lys Glu Ile Leu Glu Ala Glu Ile Glu		
450	455	460
Ser His His Pro Arg Leu Ala Ser Ala Val Gln Asp His Asp Gln Ile		
465	470	475
Val Thr Ser Arg Lys Ser Gln Glu Pro Ala Phe His Ile Ala Gly Asp		
485	490	495
Ala Cys Leu Gln Arg Lys Met Asn Val Asp Val Ser Ser Thr Asp Ile		
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 Pro Arg Pro Ala Gly Pro Ala Arg Arg Gln Phe Gln Ala Ala Ser Leu
 35 40 45
 Leu Thr Arg Gly Trp Gly Arg Ala Trp Pro Trp Lys Gln Ile Leu Lys
 50 55 60
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	850	855
Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys Pro Ser Ala Phe		
865	870	875
Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu		
	885	890
Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln Met Phe Pro Ser Glu		
	900	905
		910

Ser Lys Gln Lys Lys Val Glu Glu Asn Ser Trp Asp Ser Glu Ser Leu
 915 920 925
 Arg Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro Lys Ala Thr His
 930 935 940
 Gln Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu Asp Ser Thr Ser
 945 950 955 960
 Leu Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu Arg Ala Arg Glu
 965 970 975
 Leu Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys Met Glu Gln Met
 980 985 990
 Lys Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser Glu Ala Lys Glu
 995 1000 1005
 Ile Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp Glu Gln Glu Leu
 1010 1015 1020
 Cys Ser Val Arg Leu Thr Leu Asn Gln Glu Glu Glu Lys Arg Arg Asn
 1025 1030 1035 1040
 Ala Asp Ile Leu Asn Glu Lys Ile Arg Glu Glu Leu Gly Arg Ile Glu
 1045 1050 1055
 Glu Gln His Arg Lys Glu Leu Glu Val Lys Gln Gln Leu Glu Gln Ala
 1060 1065 1070
 Leu Arg Ile Gln Asp Ile Glu Leu Lys Ser Val Glu Ser Asn Leu Asn
 1075 1080 1085
 Gln Val Ser His Thr His Glu Asn Glu Asn Tyr Leu Leu His Glu Asn
 1090 1095 1100
 Cys Met Leu Lys Lys Glu Ile Ala Met Leu Lys Leu Glu Ile Ala Thr
 1105 1110 1115 1120
 Leu Lys His Gln Tyr Gln Glu Lys Glu Asn Lys Tyr Phe Glu Asp Ile
 1125 1130 1135
 Lys Ile Leu Lys Glu Lys Asn Ala Glu Leu Gln Met Thr Leu Lys Leu
 1140 1145 1150
 Lys Glu Glu Ser Leu Thr Lys Arg Ala Ser Gln Tyr Ser Gly Gln Leu
 1155 1160 1165
 Lys Val Leu Ile Ala Glu Asn Thr Met Leu Thr Ser Lys Leu Lys Glu
 1170 1175 1180
 Lys Gln Asp Lys Glu Ile Leu Glu Ala Glu Ile Glu Ser His His Pro
 1185 1190 1195 1200
 Arg Leu Ala Ser Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg
 1205 1210 1215
 Lys Ser Gln Glu Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln
 1220 1225 1230
 Arg Lys Met Asn Val Asp Val Ser Ser Thr Ile Tyr Asn Asn Glu Val
 1235 1240 1245
 Leu His Gln Pro Leu Ser Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys
 1250 1255 1260
 Ile Asn Leu Asn Tyr Ala Gly Asp Ala Leu Arg Glu Asn Thr Leu Val
 1265 1270 1275 1280
 Ser Glu His Ala Gln Arg Asp Gln Arg Glu Thr Gln Cys Gln Met Lys
 1285 1290 1295
 Glu Ala Glu His Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His
 1300 1305 1310
 Thr Glu Gln Gln Glu Ser Leu Asp Gln Lys Leu Phe Gln Leu Gln Ser
 1315 1320 1325
 Lys Asn Met Trp Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala
 1330 1335 1340
 Asp Asn Lys Ser Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys
 1345 1350 1355 1360
 Met Gln His His Leu Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr

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